

II. REMARKS

By the present paper, claims 15 and 26 have been cancelled without prejudice, claims 12, 14, 16, 18, 22, 23, 25 and 27 have been amended, and add new claims 30 and 31 have been added. More specifically, independent claim 12 has been amended to incorporate subject matter from claim 15 directed to the cover being a “glass cover.” Claim 12 has also been amended to recite that “the glass cover is fixed onto an annular rim of the lateral wall of the main part” as supported on page 4, lines 4-8, and by Figures 1 and 2, of Applicants’ disclosure as originally filed. Claim 12 has also been amended to recite

“wherein the main part is made of a hard material so that one part of the rim entirely surrounds lateral surfaces of the glass cover...and wherein a space is provided between all the lateral surfaces of the glass cover and the one part of the rim surrounding the glass cover, ”

as supported on page 4, lines 4-20, and by Figures 1 and 2, of Applicants’ disclosure as originally filed. Claim 12 has also been amended to recite that “the space is disposed to avoid propagation on the glass cover of lateral shock against the rim” as supported on page 3, lines 3-6, on page 4, lines 22-25, and by Figures 1 and 2, of Applicants’ disclosure as originally filed.

Claims 14, 16, 18, 22 and 23 depend either directly or indirectly upon claim 12, and have been amended in accordance with the amendment to claim 12. Claim 18 has also been amended to address a typographical error.

Independent claim 25 has been amended to recite that the “cover” is a “glass cover” as supported by previous claim 15, and to incorporate subject matter from previous claim 26. Claim 25 has also been amended to recite that “the glass cover is fixed onto an annular rim of the lateral wall of the main part” as supported on page 4, lines 4-8, and by Figures 1 and 2, of Applicants’ disclosure as originally filed. Claim 25 has also been amended to recite

“wherein the main part is made of a hard material so that one part of the rim surrounds at least certain portions of lateral surfaces of the glass cover... and wherein a height of the one part of the rim surrounding all the lateral surfaces

of the glass cover is larger than or equal to a thickness of the glass cover fixed onto the rim, and wherein the one part of the rim entirely surrounds the lateral surfaces of the glass cover, ”

as supported on page 4, lines 4-20, and by Figures 1 and 2, of Applicants’ disclosure as originally filed. Claim 27, which depends upon claim 25, has been amended in accordance with the amendment to claim 25. Claim 27 has also been amended to recite that “the space is disposed to avoid propagation on the glass cover of lateral shock against the rim” as supported on page 3, lines 3-6, on page 4, lines 22-25, and by Figures 1 and 2, of Applicants’ disclosure as originally filed.

New claims 30 and 31 depend upon claims 12 and 27, respectively, and further recite “wherein the lateral surfaces of the glass cover comprise edges and corners, and the space provided between all the lateral surfaces of the glass cover and the one part of the rim surrounding the glass cover narrows at the corners of the glass cover” as supported on page 4, lines 26-30, and by Figures 1 and 2, of Applicants’ disclosure as originally filed.

The present amendment adds no new matter to the above-captioned application.

A. The Invention

The present invention pertains broadly to an electronic component comprising at least one resonator element arranged in a first housing of a case. In accordance with an embodiment of the present invention, an electronic component comprising at least one resonator element arranged in a first housing of a case is provided that includes features recited by independent claim 1. In accordance with another embodiment of the present invention, an electronic component comprising at least one resonator element arranged in a first housing of a case is provided that includes features recited by independent claim 25. Various other embodiments, in accordance with the present invention, are recited by the dependent claims.

An advantage provided by the various embodiments, in accordance with the present invention, is that an electronic component is provided that has a hermetically sealed first housing, wherein the cover used to seal the first housing is protected by lateral shock even though the cover is made with material that is friable or breakable during manipulation of the electronic component. Thus, a part of the rim of the lateral wall of the main part of the case, which surrounds the lateral surface of the cover, protects the cover without having to have the corners and side faces of the cover ground in accordance with special conventional processes.

B. The Rejections

Claims 25 and 26 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Shimizu et al. (U.S. Patent Application Publication No. 2003/0168944 A1, hereafter the “Shimizu Publication”) in view of Luff (U.S. Patent No. 6,456,168, hereafter the “Luff Patent”). Claims 12-15, 18, 19, 21-23 and 27 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over the Shimizu Publication in view of the Luff Patent and Uchida et al. (JP 08-316732, hereafter the “Uchida Document”). Claim 16 stands rejected under 35 U.S.C. §103(a) as allegedly unpatentable over the Shimizu Publication in view of the Luff Patent and the Uchida Document and Kizaki et al. (U.S. Patent No. 5,841,217, hereafter the “Kizaki Patent”). Claims 20 and 28 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over the Shimizu Publication in view of the Luff Patent and the Uchida Document and Kondo et al. (U.S. Patent No. 5,949,294, hereafter the “Kondo Patent”). Claims 29 stands rejected under 35 U.S.C. §103(a) as allegedly unpatentable over the Shimizu Publication in view of the Luff Patent and the Kondo Patent.

Applicants respectfully traverse the Examiner’s rejections and request reconsideration of the above-captioned application for the following reasons.

C. Applicants' Arguments

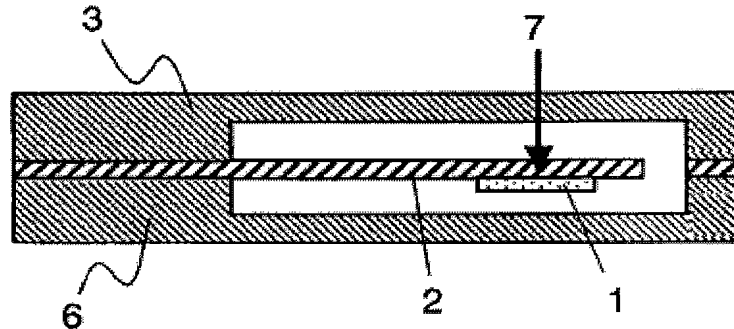
A prima facie case of obviousness requires a showing that the scope and content of the prior art teaches each and every element of the claimed invention, and that the prior art provides some teaching, suggestion or motivation, or other legitimate reason, for combining the references in the manner claimed. KSR International Co. v. Teleflex Inc., 127 S.Ct. 1727, 1739-41 (2007); In re Oetiker, 24 U.S.P.Q.2d 1443 (Fed. Cir. 1992). In this case, the Examiner has failed to establish a prima facie case of obviousness against independent claims 12 and 25 because the combination of the Shimizu Publication, the Luff Patent, the Uchida Document, the Kizaki Patent and the Kondo Patent fails to teach, or suggest, each and every limitation of these claims.

i. The Shimizu Publication

The Shimizu Publication discloses a “piezoelectric vibrator and manufacturing method thereof,” which pertains to a small piezoelectric vibrator having low equivalent series resistance, and wherein a gettering substance for gettering inner gas is provided in a sealed space formed by a hermetic container where a piezoelectric vibrator piece is arranged (See Abstract of the Shimizu Publication). According to the Shimizu Publication, the gettering substance is formed on a surface of the piezoelectric vibrator piece or on an inside wall of the hermetic container, and a manufacturing process for the piezoelectric vibrator includes (i) a process in which the gettering substance is provided inside the hermetic container, which contains the piezoelectric vibrator piece inside the hermetic container, (ii) a process in which the hermetic container is hermetic-sealed so that the piezoelectric vibrator piece is sealed in the hermetic container, and (iii) a process in which the gettering substance is heated by a laser beam from outside to perform gettering of the inner gas of the hermetic container (See Abstract of the Shimizu Publication).

The Shimizu Publication discloses a piezoelectric vibrator, such as may be used in mobile information technology devices, which includes a quartz resonator piece (2), a glass container (6), a glass cover (3), and a metal film (1) as shown in Figure 1 (Shimizu Publication, ¶¶ [0001], [0021] and [0022]), which is reproduced below for convenience.

FIG. 1



The container (6) is hermetically sealed, and the resonator piece (2) is contained within the container (Shimizu Publication, ¶ [0015]). The vibrator (2) is mounted in the housing on an edge of the base (6) in hard material (i.e., ceramic or glass), and the cover (3) is fixed on a wall of the base (6), (Shimizu Publication, ¶ [0021] and [0026]). A getter material is provided in the housing, and the getter material can be activated by laser beam in order to act as a vacuum pump (Shimizu Publication, ¶ [0028]). The getter material employed by Shimizu may be selected from aluminum, titanium, or zirconium, and a metal alloy containing these elements (Shimizu Publication, ¶ [0028]).

However, the piezoelectric vibrator (i.e., an electronic component) disclosed by the Shimizu Publication does not include any means for protecting the cover (3) against lateral shocks during manipulation of the electronic component even though the resonator piece (2) is made of glass or ceramic, which are friable or breakable materials. Thus, as conceded by the Examiner (Office Action, mailed November 18, 2009, at 2, line 21, to 3, line 5, and at 6, lines 13-16; and Office Action, mailed April 27, 2009, at 4, lines 20-23, and at 5, lines 19-22), the Shimizu Publication does not teach, or suggest, (i)

“the glass cover is fixed onto an annular rim of the lateral wall of the main part, wherein the main part is made of a hard material so that one part of the rim entirely surrounds lateral surfaces of the glass cover and ensures protection of the glass cover of the electronic component against lateral shocks”

and (ii)

“a space is provided between all the lateral surfaces of the glass cover and the one part of the rim surrounding the glass cover, wherein the space is substantially of smaller dimension than the thickness of the glass cover in order to facilitate mounting of the glass cover on the rim of the lateral wall of the main part, and wherein the space is disposed to avoid propagation on the glass cover of lateral shock against the rim”

as recited by independent claim 12, and (iii)

“the glass cover is fixed onto a rim of the lateral wall of the main part, wherein the main part is made of a hard material so that one part of the rim surrounds at least certain portions of lateral surfaces of the glass cover and ensures protection of the glass cover of the electronic component against lateral shocks”

as recited by claim 25.

As also admitted by the Examiner (Office Action, dated November 18, 2009, at 8, lines 13-18, and at 10, lines 16-19; and Office Action, dated April 27, 2009, at 7, line 19, to at 8, line 2; and at 8, line 18, to 9, line 3), the Shimizu Publication does not teach, or suggest

(iv)

“the rim of the main part of the case receiving the glass cover includes a first annular layer of gold plating, wherein a periphery of an inner face of the glass cover includes a second annular layer of gold plating, and wherein the glass cover is welded onto the rim using a metal alloy preform arranged between the first annular layer of gold plating and the second annular layer of gold plating, wherein the metal alloy is formed of tin and gold,”

as recited by claim 16, (v)

“wherein the oscillator circuit is arranged in a second housing of the main part, wherein the second housing is delimited by the lateral wall and the base, and the second housing is arranged on an opposite face of the base to the first housing of the resonator element, wherein said oscillator circuit is encapsulated in the second housing by a resin and is electrically connected to external connection terminals of the electronic component, and wherein the base of the main part of the case includes electrical connection paths for electrically connecting the oscillator circuit and the resonator element,”

as recited by claim 20, and (vi)

“an integrated circuit arranged in a second housing of the case, wherein the second housing is delimited by the lateral wall and the base of the main part, and wherein the at least one resonator element is vacuum enclosed in the first housing, and the second housing is filled with resin encapsulating the integrated circuit,”

as recited by claims 28 and 29.

However, these are not the only deficiencies in the disclosure of the Shimizu Publication. The Shimizu Publication also does not teach, or suggest (vii)

“wherein the lateral surfaces of the glass cover comprise edges and corners, and the space provided between all the lateral surfaces of the glass cover and the one part of the rim surrounding the glass cover narrows at the corners of the glass cover,”

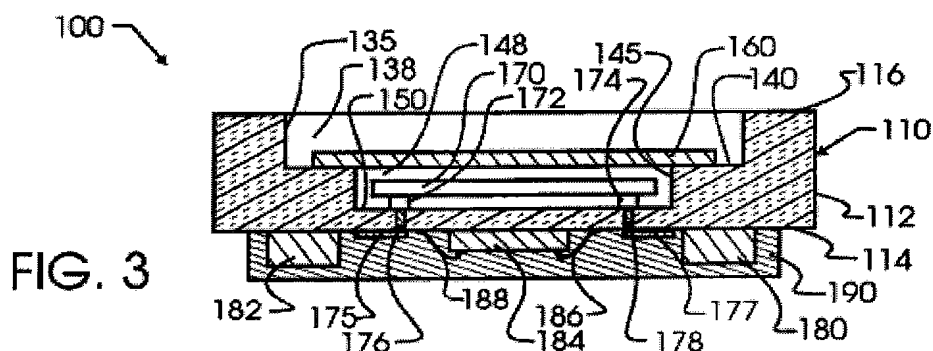
as recited by new claims 30 and 31.

In other words, the Shimizu Publication discloses an electronic component that has a piezoelectric vibrator (2) arranged inside a hermetically sealed package. The vibrator (2) is mounted in a first housing on an edge of the base (4) in hard material (i.e., ceramic material), and a glass cover (3) is fixed on a wall of the base (4), (Shimizu Publication, ¶ [0026]). Inside the housing, a getter material is provided, which may be activated by a laser beam in order to act as a vacuum pump. The getter material may be selected from among aluminium, titanium, or zirconium. However, the Shimizu Publication is completely silent regarding any kind of means for protecting the glass cover, which may be friable or breakable, against lateral shocks occurring during manipulation of the electronic component. The Shimizu Publication is also silent with respect to a part of the rim that is provided to mount and position the glass cover on a main part of the case.

For all of the above reasons, the Shimizu Publication is insufficient, by itself, to anticipate or render obvious any claim of the above-captioned application.

ii. The Luff Patent

The Luff Patent discloses a “temperature compensated crystal oscillator assembled on crystal base” as shown in Figure 3 (which is reproduced below for convenience), which



pertains to a dual-cavity temperature compensated crystal oscillator (100) provided with a three-layer ceramic package (110), and with a crystal (170) sealed in a well or cavity (148), (See Abstract of the Luff Patent). The Luff Patent also discloses that oscillator components (180) to (184), such as a compensation circuit and an oscillator, are attached through screened solder onto the back side of the ceramic package (110) and are encapsulated within potting compound or encapsulant (See Abstract of the Luff Patent). The electrical connection of the Luff device is provided between the oscillator and compensation circuitry and the piezoelectric element (170) to produce a frequency-controlled oscillator and, after frequency tuning, a hermetic seal is provided between a cover (160) and ledge (140) to hermetically seal the cavity (148), (See Abstract of the Luff Patent).

As admitted by the Examiner (Office Action, dated November 18, 2010, at 7, lines 14-17, at 8, lines 13-18, at 9, lines 12-19, and at 10, lines 16-19; and Office Action, dated April 27, 2009, at 7, line 19, to at 8, line 2; and at 8, line 18, to 9, line 3), the Luff Patent does not teach, or suggest (i)

“the space is substantially of smaller dimension than the thickness of the

glass cover in order to facilitate mounting of the glass cover on the rim of the lateral wall of the main part, and wherein the space is disposed to avoid propagation on the glass cover of lateral shock against the rim,”

as recited by claims 12 and 27, (ii)

“the rim of the main part of the case receiving the glass cover includes a first annular layer of gold plating, wherein a periphery of an inner face of the glass cover includes a second annular layer of gold plating, and wherein the glass cover is welded onto the rim using a metal alloy preform arranged between the first annular layer of gold plating and the second annular layer of gold plating, wherein the metal alloy is formed of tin and gold,”

as recited by claim 16, (iii)

“wherein the oscillator circuit is arranged in a second housing of the main part, wherein the second housing is delimited by the lateral wall and the base, and the second housing is arranged on an opposite face of the base to the first housing of the resonator element, wherein said oscillator circuit is encapsulated in the second housing by a resin and is electrically connected to external connection terminals of the electronic component, and wherein the base of the main part of the case includes electrical connection paths for electrically connecting the oscillator circuit and the resonator element,”

as recited by claim 20, and (iv)

“an integrated circuit arranged in a second housing of the case, wherein the second housing is delimited by the lateral wall and the base of the main part, and wherein the at least one resonator element is vacuum enclosed in the first housing, and the second housing is filled with resin encapsulating the integrated circuit,”

as recited by claims 28 and 29.

However, these are not the only deficiencies in the disclosure of the Luff Patent. The Luff Patent also does not teach, or suggest (vii)

“wherein the lateral surfaces of the glass cover comprise edges and corners, and the space provided between all the lateral surfaces of the glass cover and the one part of the rim surrounding the glass cover narrows at the corners of the glass cover,”

as recited by new claims 30 and 31. On the contrary, as shown in Figure 1 of the Luff Patent, the space existing between the cover (160) and the rim (135) of the body (110) does not narrow at the corners of the cover (160).

The Luff Patent pertains to a crystal oscillator assembled on a crystal base and is provided with means for compensating for temperature. The main part of the package (110) is made of a hard material such as ceramic (Luff Patent, col. 3, lines 26-29). This electronic component is configured in order to reduce size and to place the crystal resonator near the oscillator circuit in order to compensate for temperature (Luff Patent, col. 2, line 65, to col. 3, line 14). These are not objects of the present invention. Furthermore, the Luff Patent discloses connection terminals (120) provided through the base of the main part, in ceramic, in order to connect crystal resonator (170) to the integrated circuit (184) placed on an external surface of the base of the main part (Luff Patent, col. 4, lines 25-55, and col. 5, lines 26-39, and Figures 2 and 3). As shown in Figure 3 of the Luff Patent, external terminals (120) are also provided on the external lateral surfaces of the main part in order to allow connection as an SMD component on a printed circuit board. The Luff Patent employs a cover (160) made of Kovar (i.e., a metallic material) fixed on a rim (140) of the main part in order to hermetically close the crystal resonator (Luff Patent, col. 3, lines 2-10 and lines 35-41).

As would be instantly realized by persons of ordinary skill in the art, because the cover (160) is made of Kovar it is not a “glass cover” as recited by independent claims 12 and 25. In addition, the cover (160) disclosed by the Luff Patent is not friable or breakable, and cannot be broken during some routine manipulation of the electronic component. Therefore, the Kovar cover (160) disclosed by the Luff Patent is a substantially different cover from the “glass cover” recited by independent claims 12 and 25 of the above-captioned application.

As shown in Figure 3 of the Luff Patent, one part of the rim (135) surrounds the lateral surface of the cover (160). However, this part of the rim (135) is not provided so as to protect the cover (160) against lateral shocks, but it is only provided to allow making of external terminals (120) that are used for mounting the electronic component as an SMD component on a printed circuit board (Luff Patent, col. 5, lines 25-53). As would be

appreciated by persons of ordinary skill in the art, the rim (135) disclosed by the Luff Patent serves only to reduce the size of the electronic component, and it does not serve to substantially protect the cover (160) against lateral shock. Therefore, the Luff Patent does not teach, or suggest, that (viii)

“one part of the rim entirely surrounds lateral surfaces of the glass cover and ensures protection of the glass cover of the electronic component against lateral shocks,”

and (ix)

“a space is provided between all the lateral surfaces of the glass cover and the one part of the rim surrounding the glass cover, wherein the space is substantially of smaller dimension than the thickness of the glass cover in order to facilitate mounting of the glass cover on the rim of the lateral wall of the main part, and wherein the space is disposed to avoid propagation on the glass cover of lateral shock against the rim,”

as recited by independent claim 12, and (x)

“one part of the rim surrounds at least certain portions of lateral surfaces of the glass cover and ensures protection of the glass cover of the electronic component against lateral shocks,”

as recited by claim 25.

a. The Federal Circuit’s Decision in Gardner v. TEC Systems, Inc.¹ Cannot be Applied to the Facts of This Case

With respect to claim 12 and the dimensions of the “space” that is “substantially of smaller dimension than the thickness of the glass cover,” the Examiner admits that the Luff Patent does not teach this feature, but contends that it would be obvious to change relative dimensions in a device (Office Action, dated April 27, 2009, at 5, line 19, to 6, line 8). In support of this contention, the Examiner cites Gardner v. TEC Systems, Inc., 220 U.S.P.Q. 777 (Fed. Cir. 1984), (Office Action, dated April 27, 2009, at 5, line 19, to 6, line 8). The

Examiner's reliance on Gardner v. TEC Systems, Inc. is inappropriate to the facts of this case for the following reasons.

First, in Gardner v. TEC Systems, Inc., 220 U.S.P.Q. at 783, a single reference by Vits disclosed all of the claimed limitations including dimensional proportions that fell within the scope of the claimed invention. In this case, the Examiner relies upon the combination of the Shimizu Publication and the Luff Patent, and not on a single prior art reference to allegedly disclose all of the claimed limitations except for the "space" that is "substantially of smaller dimension than the thickness of the glass cover." As shown in Figure 3 of the Luff Patent, the space between the cover (160) and the rim (135) is substantially of a greater dimension than the thickness of the cover. Therefore, the Luff Patent actually teaches away from the present invention.

Secondly, the dimensional limitation recited by claim 12, wherein the "space" is "substantially of smaller dimension than the thickness of the glass cover," provides a non-obvious result in that it prevents any lateral shocks that may otherwise occur against the rim from directly propagating to the cover thereby preventing damage to the cover (See Applicants' original specification, at 4, lines 22-25). While the Luff Patent discloses a temperature compensated crystal oscillator circuit that includes a three layer package and a crystal sealed in a well or cavity, and that such a structure permits reduction in size of the package (Luff Patent, col. 2, lines 20-27 and lines 41-44), the Luff Patent is silent with respect to decreasing the dimension of the "space" or ledge (140), and it is silent with respect to providing a space in order to protect the cover from any lateral shock propagating from the rim. Therefore, the dimensions of the present invention provide unexpected improvement in preventing lateral shock from propagating to the cover from the rim.

¹ The Examiner cites "*Gardner v. TEC Systems Inc.*, 227 USPQ 964" in the Office Action mailed November 18, 2009, at 4, lines 4-6. However, this cite does not exist. Therefore, Applicants object to the improper cite and/or the improper application of unrelated caselaw.

The Examiner argues that, according to MPEP § 2144.04(IV)(A), the Federal Circuit's decision in Gardner v. TEC Systems, Inc. is not limited to a determination of patentability based on a single prior art reference. The Examiner's argument is flawed because (a) the MPEP is not the law, (b) the MPEP does not state that Gardner v. TEC Systems, Inc. is not limited to obviousness determinations based on a single reference, and (c) the Examiner has failed to adduce any legal or factual basis that would permit application of the Federal Circuit's decision in Gardner v. TEC Systems, Inc. to the facts of this case.

Furthermore, the Federal Circuit's decision in Gardner v. TEC Systems, Inc. does not excuse the Examiner from analysing each and every limitation of the claimed invention. See, e.g., Vas-Cath Inc. v. Mahurkar, 19 U.S.P.Q.2d 1111, 1118 (Fed. Cir. 1991)(Federal Circuit holding that the invention is defined by the claims, there is no "gist" of the invention, and patentability determinations must address all limitations recited by the claims). In this case, the Examiner asserts that "the prevention of propagation of lateral shocks would be further enhanced by having a larger space" (Office Action, dated November 18, 2010, at 14, lines 7-12). Applicants agree. While the Examiner argues that the larger the space between the cover and the rim, the less likely lateral shock will be propagated from the rim to the cover, **a person of ordinary skill in the art would immediately realize that the converse is true (i.e., the smaller the space between the cover and the rim, the more likely lateral shock will be propagated from the rim to the cover)**. Therefore, a person of ordinary skill in the art wishing to avoid the propagation of lateral shock from the rim to the cover would have absolutely no reason to diminish the size of the space shown between the cover (160) and the rim (135) in Figures 1 and 3 of the Luff Patent.

Based on the Examiner's admissions and arguments, a person of ordinary skill in the art would have absolutely no reason to decrease the size of the space disclosed by the Luff Patent in order to avoid propagation of lateral shock from rim to cover. The Luff Patent

implicitly teaches away from decreasing the size of the space when one wishes to decrease the propagation of lateral shock from rim to cover. Consequently, the Luff Patent cannot teach, or suggest, reconfiguring the space so that “the space is substantially of smaller dimension than the thickness of the glass cover” and “the space is disposed to avoid propagation on the glass cover of lateral shock against the rim” as recited by claim 12. For the same reasons, a reasonable administrative law judge should conclude that the facts and the law do not support the application of the Federal Circuit’s decision in Gardner v. TEC Systems, Inc. to the presently claimed invention.

To the extent that the Examiner refuses to give patentable weight to the limitation wherein “the space is disposed to avoid propagation on the glass cover of lateral shock against the rim,” (See, e.g., Office Action, dated November 18, 2009, at 13, lines 11-14), the Examiner fails to address each and every limitation of the claimed invention. Because the Luff Patent does not teach, or suggest, this limitation in combination with the limitation wherein “the space is substantially of smaller dimension than the thickness of the glass cover,” the Examiner has failed to demonstrate that the Luff Patent, either alone or in combination with other references, teaches each and every feature of the claimed invention.

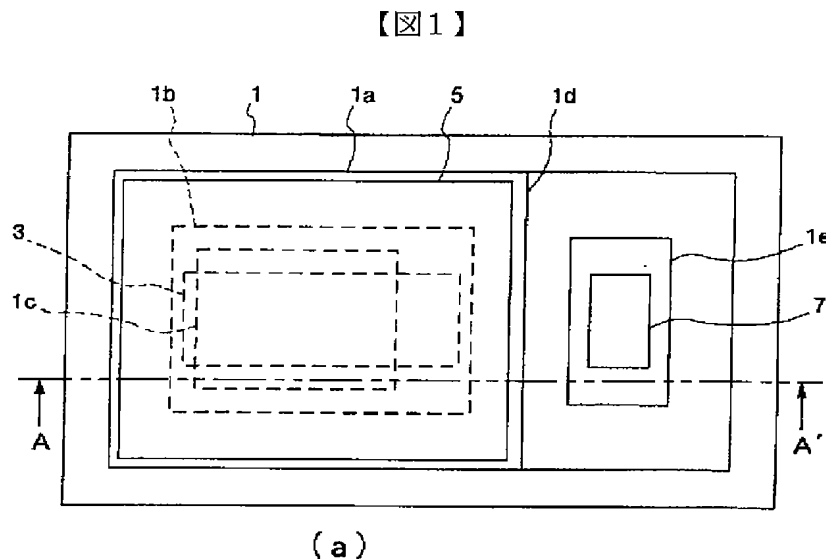
To the extent that the Examiner contends a hypothetical device resulting from the combination of multiple disclosures would inherently satisfy the limitations wherein “the space is substantially of smaller dimension than the thickness of the glass cover” and “the space is disposed to avoid propagation on the glass cover of lateral shock against the rim,” **Applicants point out that such a retrospective view of inherency is explicitly prohibited by the Federal Circuit’s ruling in In re Newell, 13 U.S.P.Q.2d 1248, 1250 (Fed. Cir. 1989).**

For all of the above reasons, the Examiner’s application of the Federal Circuit’s decision in Gardner v. TEC Systems, Inc., 220 U.S.P.Q. 777 (Fed. Cir. 1984) is not

appropriate to the facts of the present case, and the Luff Patent is insufficient, by itself, to anticipate or render obvious any claim of the above-captioned application.

iii. The Uchida Document

The Uchida Document discloses an “oscillator and its manufacture,” which pertains to a case (1), as shown in Figure 1(a), (reproduced below for convenience), for an oscillator and has a conductor pattern connecting electrically a crystal vibrator chip (3) and an IC (7), and



also has a terminal at which a resonance frequency is externally measured after the element chip (3) is fixed to the case (1) and the terminal is sealed by a cap (5), (See JPO English Abstract, of record, corresponding to the Uchida Document). The case (1), according to the Uchida Document, is provided with a 1st container section (1a), 2nd containers (1b), (1c) provided on the bottom of the container (1a), and recessed parts (1d), (1e) containing the IC chip (7), and a recessed part (1c) is provided on a bottom of the container (1b) to hold the element chip (3), (See JPO English Abstract, of record, corresponding to the Uchida Document, and Figure 1(B)). **The cap (5) is a cover to seal the element chip (3),** (JPO

English Abstract, of record, corresponding to the Uchida Document). The Uchida Document discloses that, after the element chip (3) is fixed to the case (1), the cap (5) is arranged at a prescribed position and left in an environment of nearly 400°C to melt a low melting point glass to bond the case (1) and the cap (5), thereby sealing the surrounding of the element (3) and obtaining a crystal oscillator (JPO English Abstract, of record, corresponding to the Uchida Document).

The Examiner erroneously contends that “Uchida et al. teaches a piezoelectric resonator in which the space between the lateral surface of the cover (item 5) and the one part of the rim (item 1a) is substantially smaller than the thickness of the cover (Fig 1b).” (Office Action, dated November 18, 2009, at 3, lines 16-18). The Examiner had not given a fair reading regarding the disclosure of the Uchida Patent for the following reasons.

The Examiner is obligated to give a fair reading to a reference for all that it teaches as a whole. In re Gordon, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). As evident from Fig. 1(b) of the Uchida Document, reproduced below for convenience, the Examiner has not given a fair reading to the structure disclosed by the Uchida Document.

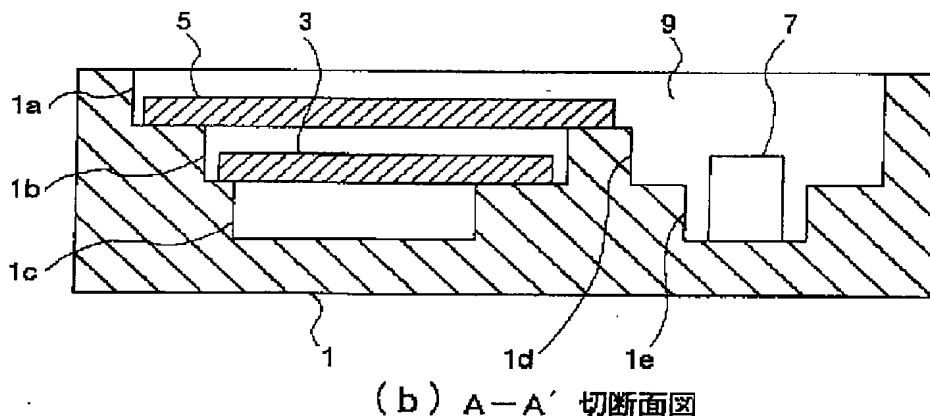


Figure 1(b) of the Uchida Document shows that cap (5) is disposed on one end near one wall of the 1st container section (1a), but the other end of cap (5) is not disposed near any

wall of the 1st container section (1a) whatsoever. Therefore, the Uchida Document, when considered as a whole, does not reasonably teach, or suggest, (i) “a space is provided between all the lateral surfaces of the glass cover and the one part of the rim surrounding the glass cover, wherein the space is substantially of smaller dimension than the thickness of the glass cover” as recited by independent claim 12. The Uchida Document also does not teach, or suggest, (ii) “the space is disposed to avoid propagation on the glass cover of lateral shock against the rim” as recited by claims 12 and 27.

According to the Uchida Document, the electronic component is not provided in order to protect a breakable cover, such as cap (5) or component (13) in Figure 3(b) that is secured to the main part of a case (1), against any lateral shock propagating from the wall (1a) of the case (1). The vibrating element (3) cannot be reasonably construed as a “glass cover” of the electronic component recited by claim 12 because the vibrating element (3) constitutes a “resonator element” and not a “glass cover.” Therefore, the “space” shown in Figures 1(a) and 1(b) of the Uchida Document as disposed between one or two lateral surfaces of the vibrating element (3) and a part of the rim (1b) cannot be construed to be the “space” provided “between all the lateral surfaces of the glass cover and the one part of the rim surrounding the glass cover” as recited by claim 12 even though the “space” may be dimensioned, in part, so that it is smaller than the thickness of the vibrating element (3).

In addition, the Uchida Document discloses that the “space” separating the lateral surfaces of the cover (5) and the case (1) is smaller than the thickness of the cover for only three lateral surfaces and not for all of the lateral surfaces of the cover (See Uchida Document, Figures 1(a) and 1(b)). The Uchida Document does not teach, or suggest, that the cap (5) needs to be protected against lateral shock because the Uchida Document does not teach, or suggest, that cap (5) is made of a friable or breakable material, such as glass.

For all of the above reasons, the Uchida Document is insufficient, by itself, to anticipate or render obvious any claim of the above-captioned application.

iv. The Kizaki Patent

The Kizaki Patent discloses a “surface mounting crystal unit” as shown in Figures 1, 7 and 18, wherein the surface mounting crystal unit comprises a quartz plate, a receptacle-like terminal member holding the quartz plate therein in such a way as to enable it to oscillate, and a lid covering an opening of the terminal member, wherein the quartz plate is prepared in the shape of a rectangular parallelepiped and disposed such that one or both of shorter sides of the quartz plate at its both ends can be fixedly attached to flat surface portions of the terminal member with an electrically conductive adhesive of high plasticity so that the impact of a drop is buffered by the adhesive (See Abstract of the Kizaki Patent). The Kizaki Patent discloses that leakage is minimized by airtight bonding of the lid to the opening of the terminal member with an inorganic material such as a solder, and that crystal impedance is lowered by producing a vacuum inside the terminal member airtightly bonded by the lid (See Abstract of the Kizaki Patent). The Kizaki Patent also discloses a solder consisting of tin and gold, electrode pads (4) and sealant (18) plated with gold, and a lid made of metal, plated with nickel and then plated with gold (Kizaki Patent, col. 4, lines 50-54, col. 6, lines 13-20, and col. 7, lines 43-51).

v. The Kondo Patent

The Kondo Patent discloses a “reference frequency source oscillator formed from first and second containers,” as shown in Figures 1 to 10, wherein the oscillator includes an active element (2) mounted inside a first container (1) whose upper surface is opened, and not only the opening of the first container (1) is closed by an oscillating unit (3) having an oscillating

element (6) incorporated therein, but also the oscillating unit (3) is attached onto the opening of the first container (1) so that second connecting electrodes (11a) to (11d) of a second container (5) of the oscillating unit (3) are electrically connected to first connecting electrodes (14a) to (14d) of the first container (1), (See Abstract of the Kondo Patent). According to the Kondo Patent, the oscillating element (6) and the active element (2) can be accommodated in separate containers, which prevents organic substances derived from an active element fixing adhesive from being deposited on the oscillating element, but also permits reuse of parts that are not defective if the active element or the oscillating element is damaged by separating the first container from the second container (See Abstract of the Kondo Patent).

vi. Summary of the Disclosures

The combination of the Shimizu Publication, the Luff Patent, the Uchida Document, the Kizaki Patent and the Kondo Patent does not teach, or even suggest, (i)

“the glass cover is fixed onto an annular rim of the lateral wall of the main part, wherein the main part is made of a hard material so that one part of the rim entirely surrounds lateral surfaces of the glass cover and ensures protection of the glass cover of the electronic component against lateral shocks”

and (ii)

“a space is provided between all the lateral surfaces of the glass cover and the one part of the rim surrounding the glass cover, wherein the space is substantially of smaller dimension than the thickness of the glass cover in order to facilitate mounting of the glass cover on the rim of the lateral wall of the main part, and wherein the space is disposed to avoid propagation on the glass cover of lateral shock against the rim”

as recited by independent claim 12, and (iii)

“the glass cover is fixed onto a rim of the lateral wall of the main part, wherein the main part is made of a hard material so that one part of the rim surrounds at least certain portions of lateral surfaces of the glass cover and ensures protection of the glass cover of the electronic component against lateral shocks”

as recited by independent claim 25. Furthermore, the combination of the Shimizu Publication, the Luff Patent, the Uchida Document, the Kizaki Patent and the Kondo Patent also fails to teach, or suggest, the subject matter of new claims 30 and 31.

The objective of the present invention is to provide an “electronic component” with a resonator in a first housing hermetically sealed by a glass cover that is friable or breakable, wherein the glass cover is protected against any lateral shock, such as occurs during manipulation of the electronic component. The glass cover is protected by the rim of the lateral wall of the main part, which entirely surrounds the lateral surfaces of the glass cover. This feature of the present invention makes it possible to protect the glass cover against lateral shock without having to grind the corners and side faces of the glass cover in accordance with special conventional grinding processes. Thanks to the rim, in accordance with the present invention, the glass cover is entirely surrounded by a protective structure and it is possible to easily position the glass cover in order to fix it on the main part of the case. In view of the fact that the Uchida Document does not teach, or suggest, that all lateral surfaces of a glass cover are surrounded by a part of the rim and a relatively small space, the combination of the Uchida Document with the Shimizu Publication and the Luff Patent fails to teach each and every limitation of the claimed invention.

Moreover, it is not a specific aim of the presently claimed invention to necessarily make an electronic component with a reduced size as discussed on page 14, lines 13-17, of the Office Action mailed November 18, 2009. However, it is a specific aim of the presently claimed invention to, on the one hand, facilitate the assembly of the glass cover on the rim of the lateral wall of the main part and, on the other hand, to have the glass cover entirely surrounded by a part of the rim with a space disposed between the lateral surfaces of the glass cover and the one part of the rim so that the glass cover is protected against any lateral shock

occurring during manipulation of the electronic component, which is essential when the first housing of the electronic component is in vacuum.

With respect to the embodiment of the invention according to claim 12, it is important that a space is provided between the lateral surfaces of the glass cover and the one part of the rim surrounding the glass cover, and that this space is of smaller dimension than the thickness of the glass cover. These structural relationships facilitates the mounting and positioning of the glass cover on the rim of the main part, and protects the glass cover against any lateral shock propagating from the rim because the one part of the rim in hard material surrounds the glass cover so that lateral shock cannot be directly transmitted to the lateral surfaces of the glass cover. This feature is not taught, or suggested, by the combination of the Shimizu Publication, the Luff Patent, the Uchida Document, the Kizaki Patent and the Kondo Patent

With respect to the embodiment of the invention according to claim 25, it is a feature that the part of the rim has a height that is larger than, or equal to, the thickness of the glass cover so that it protects the glass cover against any lateral shock. This feature is not taught, or suggested, by the combination of the Shimizu Publication, the Luff Patent, the Uchida Document, the Kizaki Patent and the Kondo Patent

For all of the above reasons, the Examiner has failed to establish a prima facie case of obviousness against independent claims 12 and 25 of the above-captioned invention, and the remaining dependent claims 13, 14, 16, 18-23 and 27-31.

vi. No Legitimate Reason to Justify the Combination and No Reasonable Expectation of Success Even if the Combination Proposed by the Examiner Was Made

A proper rejection under Section 103 requires showing (1) that a person of ordinary skill in the art would have had a legitimate reason to attempt to make the composition or

device, or to carry out the claimed process, and (2) that the person of ordinary skill in the art would have had a reasonable expectation of success in doing so. PharmaStem Therapeutics, Inc. v. ViaCell, Inc., 491 F.3d 1342, 1360 (Fed. Cir. 2007). In this case, the Examiner has failed to establish a prima facie case of obviousness against independent claims 12 and 25 because the Examiner has not established a legitimate reason to justify the combination of the Shimizu Publication, the Luff Patent, the Uchida Document, the Kizaki Patent and the Kondo Patent, and the Examiner has failed to demonstrate that a person of ordinary skill in the art would have had a reasonable expectation of success of obtaining the claimed invention even if the combination of disclosures was made.

a. No Legitimate Reason to Justify Combining Disclosures

The part of the rim disclosed by the Luff Patent, which the Examiner alleges surrounds the lateral surface of the cover (160), is not positioned to protect against lateral shocks. Assuming *arguendo* that the relatively large “space” shown in Figure 3 of the Luff Patent between the sealing cover (160) and the rim (135) does protect against propagation of lateral shock from the rim (135), which is a point Applicants do not concede, the “space” does not satisfy the relationship wherein “the space is substantially of smaller dimension than the thickness of the glass cover” as recited by claim 12. According to the Examiner, the larger the space between the rim (135) and the cover (160), the greater the tendency of the space to avoid propagation of lateral shock from the rim (135) to the cover (160), (Office Action, dated November 18, 2009, at 14, lines 7-12). Conversely, the smaller the “space” between the rim (135) and the cover (160), the greater the tendency of the space to permit propagation of lateral shock from the rim (135) to the cover (160).

In view of the above, a person of ordinary skill in the art would have absolutely no legitimate reason to decrease the size of the “space” between the rim (135) and the cover

(160) shown in Figure 3 of the Luff Patent because decreasing the size of the space so that it “is substantially of smaller dimension than the thickness of the glass cover” would only increase the tendency of lateral shock to propagate from rim (135) to cover (160). In other words, the motivation cited by the Examiner for combining the disclosures of the Shimizu Publication and the Luff Patent and the Uchida Document, namely, that “[t]he reason for combining Uchida et al. and Shimizu et al. was provided as “it has been held that a mere change in the relative dimensions in a device is obvious”” (Office Action, dated November 18, 2009, at 14, lines 18-20), is flawed because decreasing the size of the “space” is, based on the art of record and the Examiner’s admissions, expected to increase propagation of lateral shock between the rim and the cover.

In addition, the Examiner has combined the disclosures of no less than four substantially different documents in order to allege that claims 16, 20 and 28 are obvious. The Examiner’s use of so many substantially different disclosures, and the fact that the alleged combinations still fall short of the invention claimed, is evidence that the Examiner is impermissibly employing disclosures as a mosaic to recreate (imperfectly) a facsimile of the invention. Northern Telecom, Inc. v. Datapoint Corporation, 15 U.S.P.Q.2d 1321, 1323 (Fed. Cir. 1990).

For all of the above reasons, the Examiner has failed to establish a legitimate reason to justify combining the disclosures of the Shimizu Publication, the Luff Patent, the Uchida Document, the Kizaki Patent and the Kondo Patent. Therefore, the Examiner has failed to establish a prima facie case of obviousness against claims 12-14, 16, 18-23, 25 and 27-31.

**b. No Reasonable Expectation of Success Even if the Combination
of Disclosures Asserted by the Examiner is Made**

The modification suggested by Examiner, wherein the “space” is reduced in size in order to reduce size of the electronic component, is not expected to satisfy the relationship wherein “the space is disposed to avoid propagation on the glass cover of lateral shock against the rim” as recited by claims 12 and 27. Therefore, even if the combination of the disclosures of the Shimizu Publication, the Luff Patent, the Uchida Document, the Kizaki Patent and the Kondo Patent was made as asserted by the Examiner, the Examiner has still failed to demonstrate that a person of ordinary skill in the art would have had a reasonable expectation of success of arriving at Applicants’ claimed invention because the combination would not reasonably result in an “electronic component” having “the space [] disposed to avoid propagation on the glass cover of lateral shock against the rim” as recited by claims 12 and 27.

To the extent the Examiner speculates that an “electronic component” resulting from the combination of the Shimizu Publication, the Luff Patent, the Uchida Document, the Kizaki Patent and the Kondo Patent, may possibly “inherently” include the limitation wherein “the space is disposed to avoid propagation on the glass cover of lateral shock against the rim” as recited by claims 12 and 27, Applicants object. It is a well-settled proposition that inherency pertains to implicit subject matter that is the natural result flowing from the explicitly disclosed subject matter of a single reference, and that inherency cannot be established by mere probabilities or possibilities, and the mere fact that a certain thing may result from a given set of circumstances is insufficient. Continental Can Co. USA Inc. v. Monsanto Co., 20 U.S.P.Q.2d 1746, 1749 (Fed. Cir. 1991). Furthermore, the Federal Circuit has ruled that a retrospective view of inherency, based on what implied characteristics a device resulting from a combination of art might exhibit, is explicitly prohibited when

determining patentability under 35 U.S.C. § 103. In re Newell, 13 U.S.P.Q.2d 1248, 1250 (Fed. Cir. 1989).

For all of the above reasons, the Examiner has failed to establish a reasonable expectation of success with respect to obtaining the claimed invention even if the combination of the disclosures of the Shimizu Publication, the Luff Patent, the Uchida Document, the Kizaki Patent and the Kondo Patent, is made. Therefore, the Examiner has failed to establish a prima facie case of obviousness against claims 12-14, 16, 18-23, 25 and 27-31.

III. CONCLUSION

The Examiner has failed to establish a prima facie case of obviousness against claims 12-14, 16, 18-23, 25 and 27-31 because the combination of the Shimizu Publication, the Luff Patent, the Uchida Document, the Kizaki Patent and the Kondo Patent fails to teach, or suggest, (i)

“the glass cover is fixed onto an annular rim of the lateral wall of the main part, wherein the main part is made of a hard material so that one part of the rim entirely surrounds lateral surfaces of the glass cover and ensures protection of the glass cover of the electronic component against lateral shocks”

and (ii)

“a space is provided between all the lateral surfaces of the glass cover and the one part of the rim surrounding the glass cover, wherein the space is substantially of smaller dimension than the thickness of the glass cover in order to facilitate mounting of the glass cover on the rim of the lateral wall of the main part, and wherein the space is disposed to avoid propagation on the glass cover of lateral shock against the rim”

as recited by independent claim 12, and (iii)

“the glass cover is fixed onto a rim of the lateral wall of the main part, wherein the main part is made of a hard material so that one part of the rim surrounds at least certain portions of lateral surfaces of the glass cover and ensures protection of the glass cover of the electronic component against lateral shocks”

as recited by independent claim 25, and (iv)

“wherein the lateral surfaces of the glass cover comprise edges and corners, and the space provided between all the lateral surfaces of the glass cover and the one part of the rim surrounding the glass cover narrows at the corners of the glass cover,”

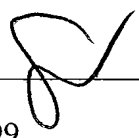
as recited by new claims 30 and 31. Furthermore, the Examiner has failed to adduce a legitimate reason to justify making the proposed combination because the Examiner has failed to provide a legitimate reason for decreasing the size of the space disclosed by the Luff Patent between the rim and the cover in view of the fact that decreasing the size of the space would be expected to enhance propagation of lateral shock. In addition, the same facts demonstrate that a person of ordinary skill in the art would not have had a reasonable expectation of success of achieving Applicants' claimed invention even if the combination of the Shimizu Publication, the Luff Patent, the Uchida Document, the Kizaki Patent and the Kondo Patent was made.

For all of the above reasons, independent claims 12-14, 16, 18-23, 25 and 27-31 are in condition for allowance, and a prompt notice of allowance is earnestly solicited.

Questions are welcomed by the below-signed attorney for Applicants.

Respectfully submitted,

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